

REMARKS

In response to the Office Action of August 14, 2001, please consider the following:

Upon entry of the above amendments this application will contain claims 1-33. This application was subjected to a restriction requirement between method claims 1-16 and apparatus claims 17-25. In response, claims 17-25 were provisionally elected with traverse. In the outstanding Office Action, claims 1-16 were not considered for being directed to a non-elected invention. This Response submits new claims 26-33.

Claim 17 was rejected under 35 USC § 112, first paragraph for lack of an enabling disclosure.

Claims 18-21 were rejected under 35 U.S.C § 102(b) over Kodan et al., (US 5,539,546 (hereinafter "the '546 patent").

Claims 17 and 22-25 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Jie et al. "Experimental Studies of the Effect of Plasma Wavelength on Radiative Properties of Indium Tin Oxides Heat Mirror Films for Solar Thermal Applications", (hereinafter "Jie et al."). For the reasons more fully discussed below it is believed that the claimed invention is patentable over the cited references. Accordingly, reconsideration of the present application leading to timely allowance is respectfully requested.

With regard to the rejection of claim 17 under 35 U.S.C. 112, 1st paragraph, for lack of an enabling disclosure, this rejection is respectfully traversed for at least the following reason. Page 6, line 20 through page 7, line 19 discloses a low-resistance ITO thin film which is defined as having an electrical resistivity on the order of or less than $1 \times 10^{-4} \Omega \text{ cm}$. Further, it is disclosed that the ITO is a solid solution of indium oxide to which SnO_2 is added and which is generally referred to as ITO. The percentage by weight in the ITO film is discussed with respect to the resistivity. The ITO may have a C rare earth type or corundum-type crystalline structure. Thus, this

portion of the specification clearly discloses an ITO thin film, per se, which does not require the presence of a substrate.

In two instances, the office action refers to a "self-supporting" film. Applicant has not claimed a self-supporting film. Applicant has claimed only an ITO film having specific characteristics, nothing more. An ITO film having the characteristics of claim 17 is disclosed, as discussed above with reference to pages 6 and 7. It is submitted that the instant disclosure supports all the claimed recitations and would enable one of ordinary skill in the art of ITO films to make and/or use such a film. Accordingly, reconsideration leading to withdrawal of the rejection under 35 U.S.C. § 112, 1st paragraph is respectfully requested.

With respect to the rejections of claims 18-21 under 35 U.S.C § 102(b) over the '546 patent, the rejections are respectfully traversed and should be withdrawn for at least the following reasons.

Independent claims 18 and 19 each recite that the ITO is deposited on a crystalline substrate. The resulting ITO film has high crystallinity, which is derived from the high crystallinity of the underlying substrate. Thus, a higher carrier production efficiency of Sn taken into the film is increased so that the low resistivity of the film is achieved. (Application at page 7, line 20-page 9, line 2.) In contrast the '546 patent only discloses and teaches an ITO film formed on a glass substrate. Glass is an amorphous solid not crystalline. The '546 patent fails to mention or teach any ITO films deposited on crystalline substrates or the use of crystalline substrates in ITO thin film manufacture as recited in the claims of the present application.

Accordingly, the '546 patent fails to anticipate independent claims 18 and 19, claim 20, which depends from claim 18, and claim 21, which depends from claim 19. In view of the foregoing, it is respectfully requested that the rejections of claims 18-21 be withdrawn.

As to the rejections of claims 17 and 22-25 over Jie et al., it is maintained that this reference is not prior art to the present application. The present application claims priority to Japanese patent applications Nos. 11-203976 filed July 16, 1999 and to 2000-

187755 filed June 22, 2000, both of which pre-date the Jie et al. reference. It is believed that these rejections are therefore moot, and their withdrawal is requested. Moreover, even if considered as prior art, the rejections on the basis of this reference should be withdrawn. Jie et al. is silent as to a resistivity on the magnitude recited in claims 17 and 23 and the claims depending therefrom. The resistivity of the ITO film recited in these claims is lower than $1 \times 10^{-4} \Omega \text{ cm}$. In contrast the Jie et al. reference discloses an ITO HMF (heat mirror film) having a resistivity of $2.8 \times 10^{-6} \Omega \text{ m}$. Thus, the resistivity of the film in Jie et al. is approximately three times greater than that recited in these claims.

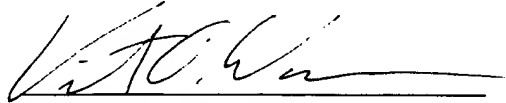
Furthermore, Jie et al. actually teaches away from an ITO film having the characteristics disclosed and claimed by the present applicants. Jie et al. relates to a heat mirror film, i.e., a heat-ray reflective film. In this area of technology, there is no demand for a low resistivity ITO film. Accordingly, there is no need for a Sn dopant. This is an entirely different field of technology as compared to that of the present invention. Accordingly, one of ordinary skill in the art to which the present invention pertains would not look to the publication as teaching the technology of the present invention. The Jie et al. reference does not disclose or suggest a Sn dopant as recited in claims 17 and 22 (and claims depending therefrom) and describes the ITO film as deposited on a glass substrate, which as noted above, is an amorphous substrate. This, of course, produces the same problem as discussed above with respect to the '546 patent. Accordingly, there is no suggestion or teaching to one of ordinary skill in the art to which the present invention pertains to modify the disclosure of Jie et al. to arrive at applicants' claimed invention.

It is believed that claims 17-33 are allowable. It is further requested that claims 1-16 now be considered pursuant to MPEP §821.04.

In view of the foregoing remarks, Applicants respectfully submit that the cited references either singly, or in combination, do not disclose, or make obvious the claimed invention. Accordingly, reconsideration leading to withdrawal of all rejections under 35 U.S.C. §§ 112, 102(b) and 103(a) and passage of this application containing

claims 1-33 is respectfully requested. Additionally, the Examiner is invited to telephone the undersigned attorney if there are any questions about the submission or other matters which can be addressed in that fashion.

Respectfully submitted:

A handwritten signature in black ink, appearing to read "V.O. Wagner", is written over a horizontal line.

Vincent O. Wagner

Reg. No. 29,596

Woodard, Emhardt, Naughton

Moriarty & McNett

Bank One Center Tower

111 Monument Circle, Suite 3700

Indianapolis, Indiana 46204-5137

(317) 634-3456

VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS:

Claims 26-33 have been added in this response.